

FIG. 1

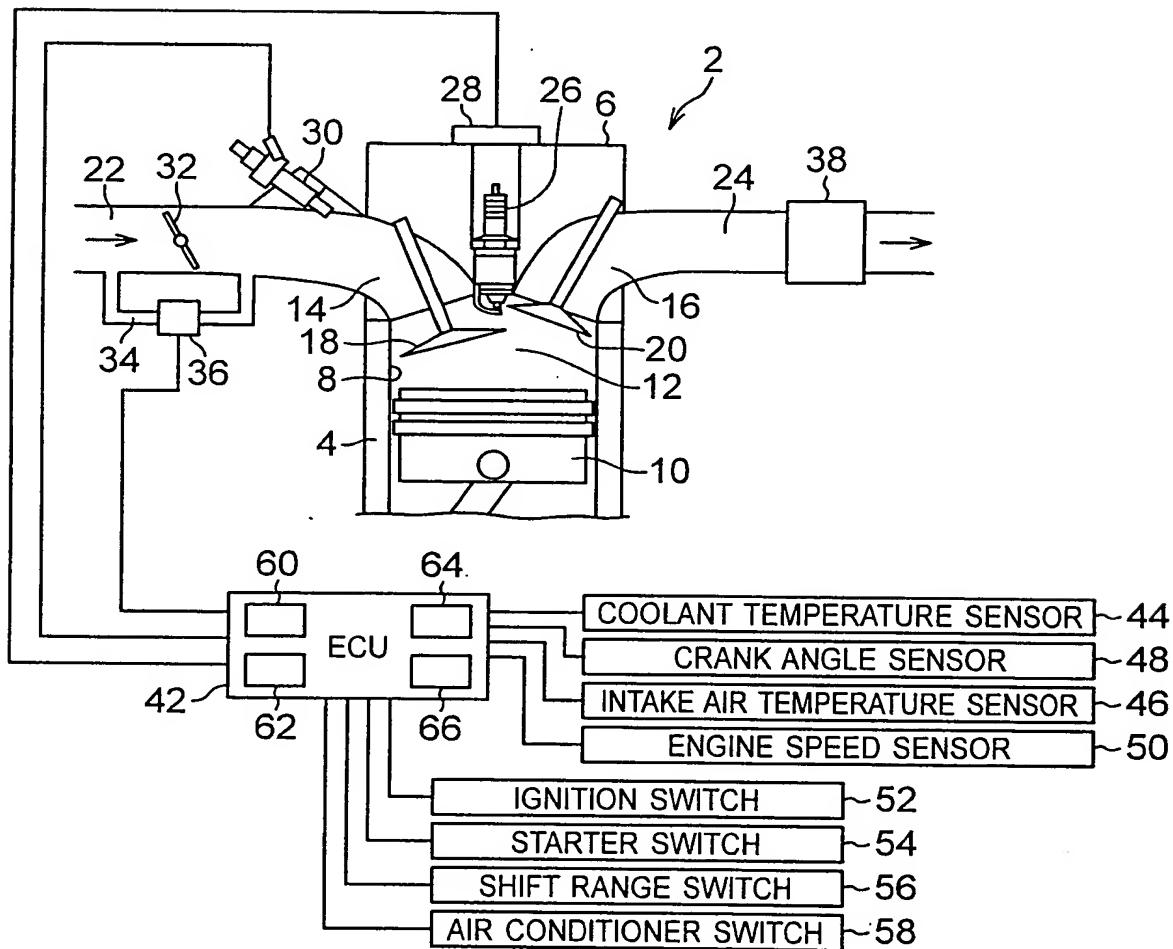


FIG. 2

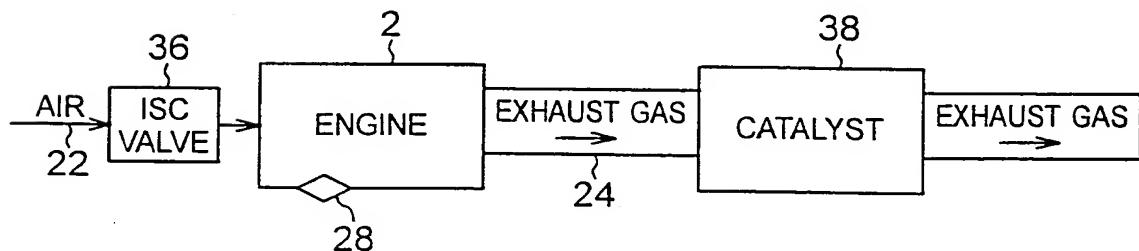


FIG. 3

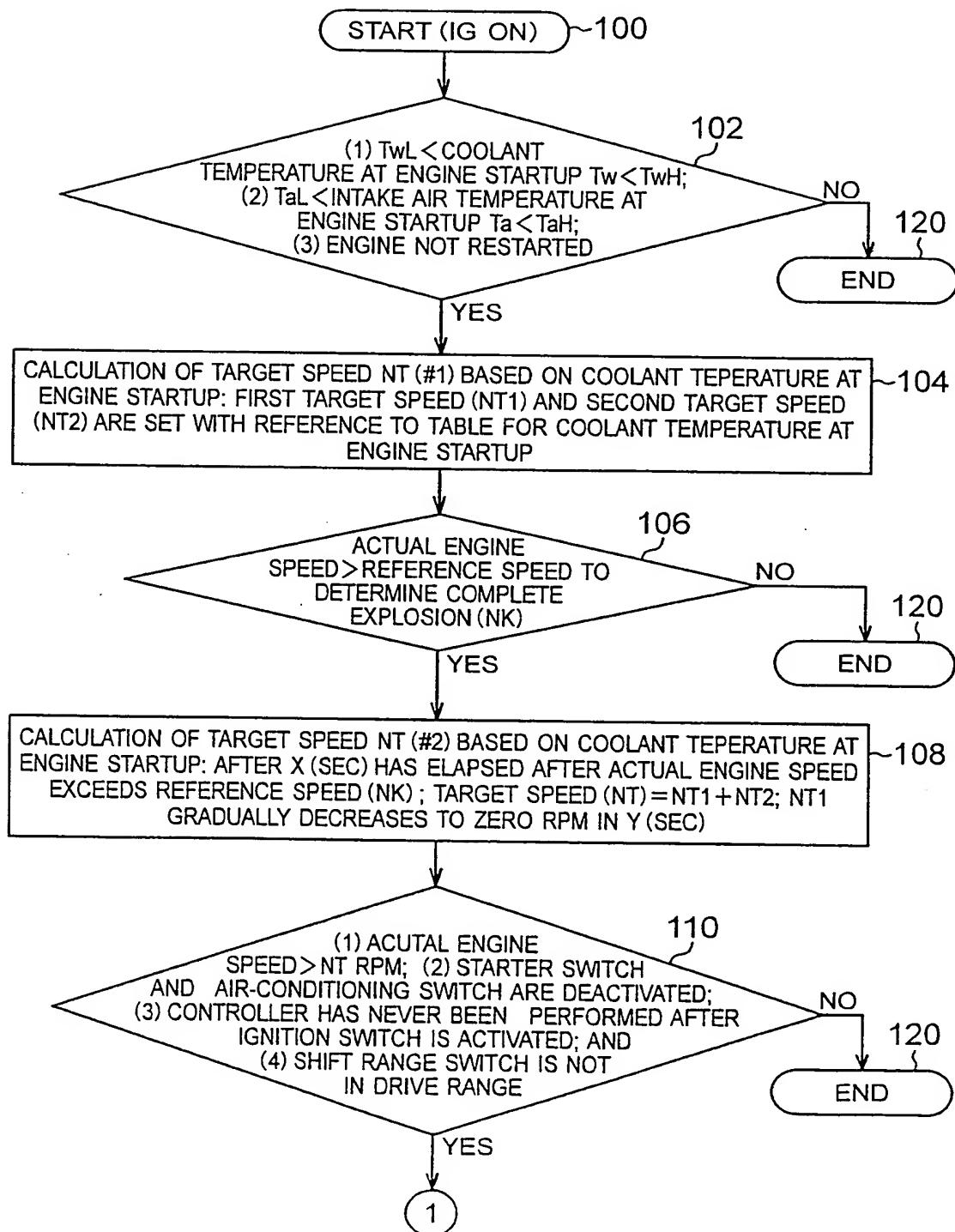


FIG. 4

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ISC FLOW RATE AT ENGINE STARTUP, CONTROL FOR ISCFST:  
QAFST1 (Tw) AND QAFST2 (Tw) ARE BYPASS AIR QUANTITY FOR CORRECTION  
(#1, #2, RESPECTIVELY) AFTER ACTUAL ENGINE SPEED NE EXCEEDS REFERENCE  
SPEED NK (SET ACCORDING TO TABLE FOR COOLANT TEMPERATURE AT ENGINE  
STARTUP); TQAFST1, TQAFST2, TQAFST3, ARE BYPASS AIR QUANTITY  
CORRECTING TIME (#1, #2, #3, RESPECTIVELY) AFTER ACTUAL ENGINE SPEED  
NE EXCEEDS REFERENCE SPEED NK;  
ISCFST = QAFST1 (Tw) LITER AFTER ACTUAL ENGINE SPEED NE EXCEEDS  
REFERENCE SPEED NK AND AFTER TQAFST1 HAS ELAPSED;  
ISCFST = QAFST2 (Tw) LITER AFTER ACTUAL ENGINE SPEED NE EXCEEDS  
REFERENCE SPEED NK AND AFTER TQAFST2 HAS ELAPSED;  
ISCFST = 0 LITER AFTER ACTUAL ENGINE SPEED NE EXCEEDS REFERENCE SPEED  
NK AND AFTER TQAFST3 HAS ELAPSED;  
FEEDBACK CORRECTION OF BYPASS AIR QUANTITY ISCFST WITH RESPECT TO  
ENGINE SPEED BECOMES ZERO LITER;  
QISC (TOTAL VOLUME OF BYPASS AIR) = ISCTW (TOTAL VOLUME OF FLOW) + ISCFST;  
AND ISCFST IS SET ABOVE 120 LITER FOR EACH CYLINDER.



CONTROL OF IGNITION TIMING #1:

ADVS IS FINAL IGNITION TIMING; ADVSTD IS BASE IGNITION TIMING; AND  
ADVFB IS IGNITION TIMING CORRECTED BY ENGINE SPEED FEEDBACK;  
 $\Delta NE$  = ACTUAL ENGINE SPEED NE - TARGET ENGINE SPEED NT;  
Kp IS PROPORTIONAL CORRECTION FACTOR; Ki IS INTEGRAL CORRECTION  
FACTOR GAIN; I IS INTEGRAL CORRECTION FACTOR ( $I = \sum Ki$ ); INTEGRATED  
FOR EACH IGNITION UNTIL ENGINE SPEED IS ABOVE NT; Ki IS INTEGRAL  
CORRECTION FACTOR GAIN (Kip = POSITIVE GAIN WHILE  $\Delta NE < 0$ , AND  $Kim =$   
NEGATIVE GAIN WHILE  $\Delta NE > 0$ ); AND  
ADVS = ADVSTD + ADVFB.



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(1)  $\Delta NE < -A$  RPM; OR  
(2)  $\Delta NE < -B$  RPM AND THIS IS MAINTAINED FOR  
DURATION C UNTIL ENGINE SPEED IS BELOW NT AND  
HIGH ENERGY COIL IS EQUIPPED

NO

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END

YES

CONTROL OF IGNITION TIMING #2:  
IGNITION PLUG OF SAME CYLINDER IS IGNITED MORE THAN ONE TIME ( $D > 1$ )  
UNTIL ACTUAL ENGINE SPEED NE CONVERGES TO TARGET SPEED NT

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END ~120

Title: CONTROLLER FOR CONTROL AT ENGINE STARTUP  
Inventor(s): Takashi ISE  
Serial No.: Unknown  
Docket No.: Saigoh Case 313

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FIG. 5

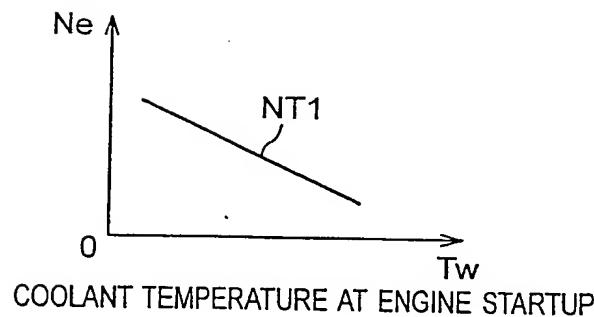


FIG. 6

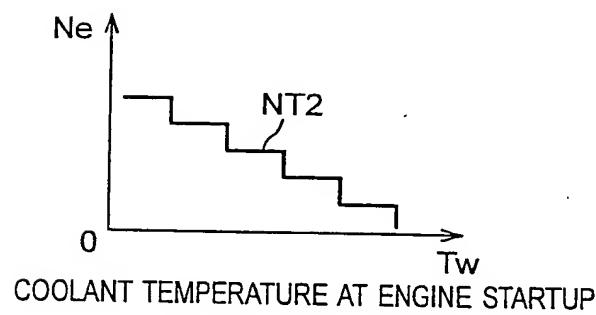


FIG. 7

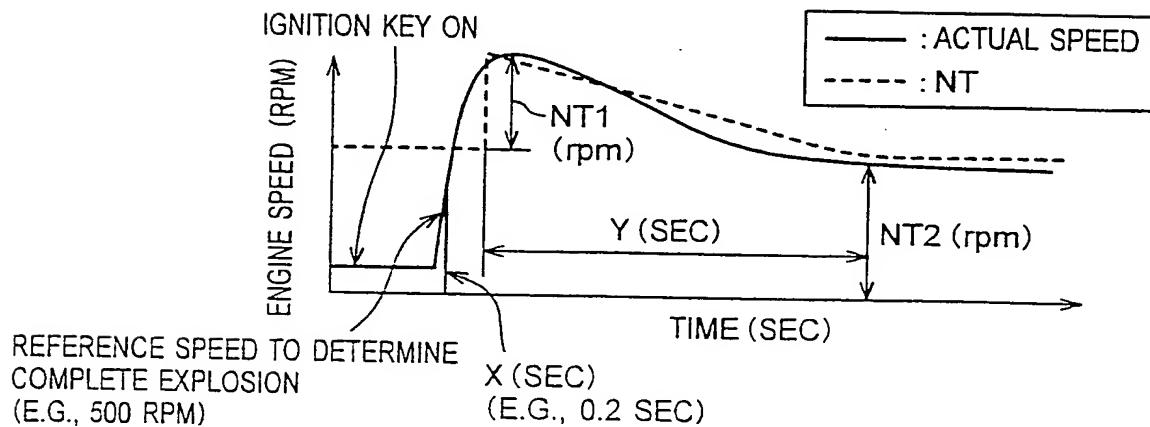


FIG. 8

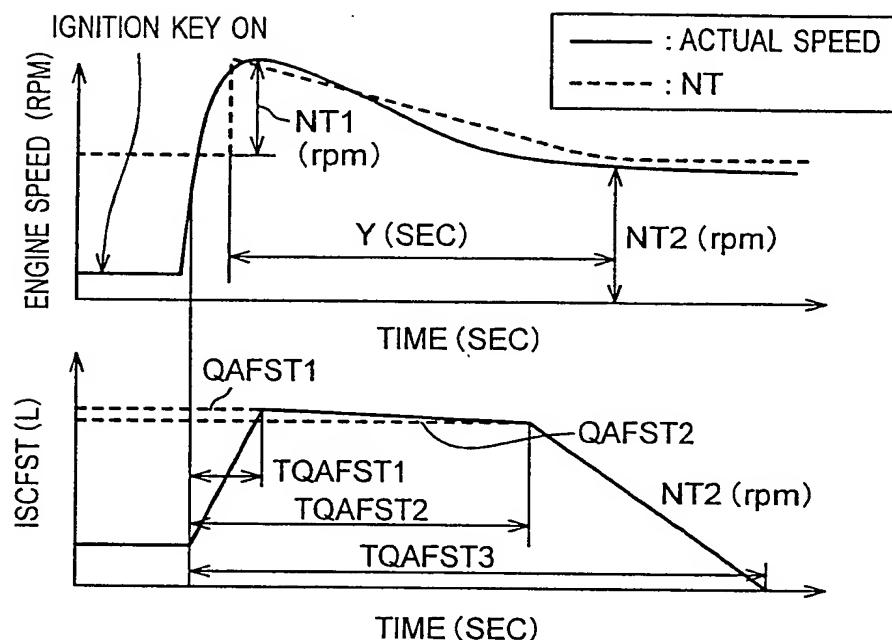


FIG. 9

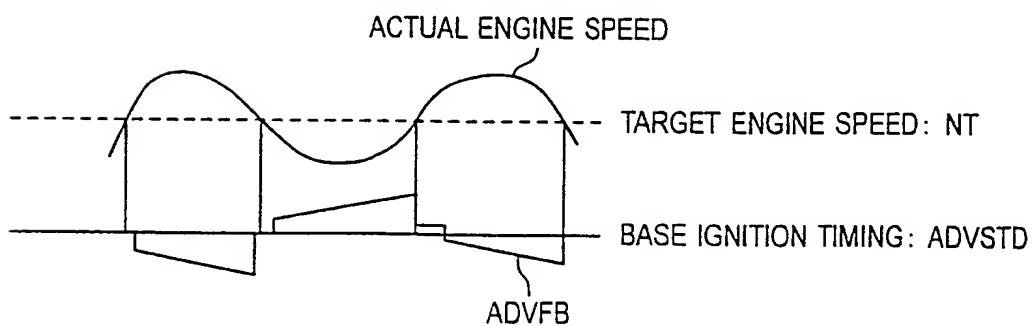


FIG. 10

